

# Warfarin use significantly increases risk of knee and hip replacement in people with OA

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New research presented at ACR Convergence, the American College of Rheumatology's annual meeting, shows that use of warfarin, a vitamin K

drug widely prescribed to prevent blood clots, is associated with a significantly greater risk of knee and hip replacements in patients with osteoarthritis (ABSTRACT #0934).

Osteoarthritis (OA) is a common joint disease that most often affects middle-age to elderly people. It used to be commonly referred to as "wear and tear" of the joints, but we now know that OA is a disease of the entire joint, involving the cartilage, joint lining, ligaments, and bone.

Vitamin K deficiency has been associated with OA, and recent research shows that [vitamin K](#) supplementation may reduce OA progression. However, no studies to date have evaluated whether vitamin K antagonism with the use of warfarin, an [anticoagulant](#) drug, can be detrimental to OA. This new study evaluated the relationship of warfarin, a medication commonly prescribed for [atrial fibrillation](#)—which is the management of quivering or irregular heartbeats—to the risk of knee and hip replacements in end-stage OA.

"We hypothesized that disruption of the functioning of vitamin K-dependent bone and cartilage proteins through vitamin K antagonism may lead to abnormalities in chondrocyte functioning with adverse effects on cartilage health, which in turn can increase the risk of developing or worsening of OA," says study co-author Priyanka Ballal, MD, rheumatology fellow at Boston University Medical Center.

"Because direct oral anti-coagulants are alternate options for anticoagulation that do not inhibit vitamin K's functioning, clarifying this risk of warfarin would give providers and patients valuable information when they consider their choice of anticoagulation in patients with atrial fibrillation."

The nested, case-control study used data from the Health Improvement Network, a general practitioner-based electronic medical records database from the United Kingdom (UK) that is representative of the

general population. The study sample was limited to adults ages 40-89 with atrial fibrillation since this diagnosis warrants anticoagulation therapy. They compared warfarin, which is a vitamin K antagonist, with direct oral anticoagulants which do not inhibit vitamin K and were first marketed in the UK in 2008. Among other exclusions, they excluded anyone who had a knee or hip replacement before 2014, anyone with severe comorbidities that would limit surgery, those who took warfarin or direct oral anticoagulants within one year prior to the study period, and anyone who used both drugs in the study period. They identified cases as anyone who had a knee or hip replacement between 2014 and 2018. Each case was matched with up to four controls for age and gender. Warfarin and direct oral anticoagulant use were defined as having one or more prescriptions after the study entry and within one year before the index date.

The researchers assessed how warfarin compared with direct oral anticoagulants for the risk of knee or hip replacements. The study included 913 patients who had either knee or hip replacement, age- and gender-matched four-to-one with 3,652 controls. Their mean age was 74 and 46% were female. Of the 913 surgery cases, 64.9% were warfarin users and 35.1% were direct oral anticoagulant users.

After adjusting for potential confounders, they found that warfarin users had 1.57 times higher odds of having a knee replacement or hip replacement than direct oral anticoagulant users. They also found an increasing risk of [knee](#) or [hip replacement](#) surgery with the duration of warfarin use compared to direct oral anticoagulants use.

The researchers stress that their data supports the importance of adequate vitamin K in limiting the progression of OA in patients and raises the consideration of using direct oral anticoagulants instead of warfarin when indicated in people with OA or at risk for the disease.

"Our research supports the importance of adequate Vitamin K and dependent proteins for limiting progression of OA," says Dr. Ballal. "Given these potential adverse effects of [warfarin](#) on joint health, our study suggests that direct oral anticoagulants could be considered for managing atrial fibrillation among patients who have OA. The next steps for our group's research are the design and launch of an adequately powered randomized trial to test the efficacy of vitamin K supplementation for OA outcomes."

**More information:** [acrabstracts.org/abstract/warf...nd-hip-replacements/](https://acrabstracts.org/abstract/warf...nd-hip-replacements/)

Provided by American College of Rheumatology

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